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ARTICLE

Understanding Risk Governance: Introducing Sociological Neoinstitutionalism and Foucauldian Governmentality for Further Theorizing

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Abstract This article traces the career of risk across prominent theoretical approaches by highlighting their key assumptions and premises, specifically the technical approach found in the physical sciences, and economics, psychology, and sociology in the social sciences. In each discipline, the strengths and limitations of each theoretical approach are pointed out. The discussion focuses on sociology in particular because other approaches—in treating risks as dominantly technical, psychological, or economic phenomena—tend to downplay the broader historical and socio-political context that impinges on risk construction and production, and its differential impact across society. This exploration points out that institutions play an important role in creating, managing, and distributing risks in society. After highlighting the integrated risk governance framework as a nascent practice-oriented framework, the framework is examined theoretically using sociological neoinstitutionalism and Foucault's concept of governmentality. The conclusion elaborates the challenges of using these two bodies of knowledge to study risk governance of extreme events. Although Foucault's concept of governmentality corrects neoinstitutional theory's ambivalence toward power, more work needs to be done in order to reconcile their divergent intellectual commitments.

Keywords governmentality, risk, risk governance, sociological neoinstitutionalism

1 Introduction

The study of risk is informed by a diverse range of theoretical approaches that cut across multiple disciplines. While the formal study of risk is a recent affair, the endeavor to make sense of the unknown has been pursued since time immemorial. The economic historian Peter Bernstein noted that the story of risk is very much cast in the Greek mythological struggle of Prometheus, of how humans "defied the gods and probed the darkness in search of light that converted the future from an enemy into an opportunity" (Bernstein 1996, 1).

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Much has been said about the contribution of the risk enterprise to the economy and, at a more fundamental level, modern society. Rather than recounting the accomplishments in technical sophistication of risk research and application, this article stresses the less obvious aspects of risk, particularly the way through which risks and knowledge about risks are being produced, reproduced, and propagated.

This article is organized as follows. First, it briefly traces the career of risk through its multi-faceted conceptualizations across prominent theoretical approaches. An introduction to these various approaches is necessary because risk research has become a multidisciplinary enterprise. This multidisciplinarity is best demonstrated by highlighting the technical approach most salient in the physical sciences, and the social science approaches commonly encountered in economics, psychology, and sociology. Institutions are important in creating, managing, and distributing risks in society, and risk governance constitutes a nascent practice-oriented framework that not only consolidates the assessment and management of risk, but also guides decision making. Sociological neoinstitutionalism and Foucauldian governmentality are used in the next section to examine risk governance. It is beyond the scope of this article to weave the two theories together in an elaborate fashion. But by introducing them, more researchers may consider either using them to theorize risk governance or to explore alternative theories in lieu of popular ones. Using both bodies of knowledge, particularly their divergent intellectual commitments, creates challenges to both risk practitioners and researchers.

2 Four Approaches toward Risk

This section is less about conducting an exhaustive literature review, and more about summarizing how risk is conceptualized in multiple disciplines. Others have conducted comprehensive surveys either across disciplines (Slovic 1992; Renn 1998), or have made more targeted comparisons between them, for instance between psychology and sociology in

Taylor-Gooby and Zinn (2006). These reviews constitute fundamental baselines for understanding risk research.

Four approaches to risk are discussed: (1) the technical approach; (2) the economic approach; (3) the psychological approach; and (4) the sociological approach. The choice of sequence is deliberate as the first three approaches are ontologically closest because they subscribe to a more realist view that asserts it is not only possible to produce a more precise and quantifiable value of risk, but also possible to distinguish between real (that is, what actually is "out there") and imagined risks, since risk often exists chiefly as a within-person perception, albeit one that is collectively experienced (Taylor-Gooby and Zinn 2006). Finally, the sociological approach is discussed and the different aspects are elaborated in which a sociological approach is compatible with but also contrasted to the aforementioned approaches.

Before examining the individual approaches, a general definition is in order. There is a broad understanding that risks refer to the "*possibility* that human actions or events lead to consequences that affect aspects of what humans value" (Renn 1998, 51). In particular, the emphasis on consequences is on the negative aspects of human activities in the form of physical loss (such as infrastructural damage), human injuries, and deaths. Death as the potential ultimate dreadful outcome seems to be the lowest common denominator across various approaches toward risk (Douglas 1990; Renn 1992).

2.1 Technical Approach

The technical approach (for example in the engineering sciences) aims to provide a quantitative value of risk to support decision making in the public and private sectors. Risk in the technical sense refers to the product of the probability of an event or activity with negative effects (for instance loss of property or death) and the magnitude of the event (Douglas 1990; Renn 1998). The focus on calculation of risk came with the realization that technological accidents could exact huge costs on society (Starr 1969). As a result, the concern for safety regarding technological systems with great potential for harm necessitates incorporating risk assessment early in the design phase and not as an afterthought in the wake of accidents (Starr and Whipple 1980).

The technical approach rests on three key assumptions. First, the historical data available for any activity or event is sufficient to show consistent patterns of fatalities (Starr 1969). Second, the data contains sufficient information about societal preference and the costs involved to drive prediction for the technical approach to guide decision making effectively (Starr 1969). Undergirding both assumptions is the condition that the causal agents responsible for the fatalities are so stable that the predictions will be reliable (Renn 1998).

In practice, these assumptions are often not met. For instance, new technologies such as nuclear power plants have not accumulated enough accidents to permit probabilistic analysis in the actuarial sense. Instead, researchers first estimate the probability of failure of individual components of such complex technical systems, including the interactional effects between components, before synthesizing all the probabilities to model the overall failure rate of the system (Starr and Whipple 1984; Renn 1998).

The technical approach, while capable of producing precise values of risk, faces several issues. For one, different combinations of the product of probabilities and the magnitudes of consequences can generate the same value. In other words, low-probability high-consequence and high-probability low-consequence events can share identical risk values. This situation presents a conundrum because it provides little additional information to prescribe risk mitigation that can be customized to these two distinctive categories of events. Several studies, particularly in psychological research (Slovic 1987; Renn 1998), suggest that people also show preference for one category of events or the other. Specifically, they are more repulsed by singular events that maim and kill a lot of people at once. Terrorist attacks using car bombs versus the fatalities caused by car accidents illustrate this contrast.

In addition, risk analysis that is limited to a technical approach captures only a narrow set of failure scenarios. To elaborate, failures in complex technological systems are seldom completely technical in nature, but also are complicated by management issues or social events (Perrow 1984; Renn 1998). As a result, researchers have argued for a socio-technical approach that account for both technical and social dimensions of risk (Turner 1979).

The technical approach is also less equipped to address issues that are social in nature. There was a growing discomfort from the 1960s with the dominant technical view that assumed everyone accepted the benefits and costs espoused by experts, but that assumption ignored subjective experience toward risks (Slovic 1992; Renn 1998). Coupled with and related to this concern was the understanding that questions about risk distribution in society were trans-scientific in nature (Weinberg 1972; Slovic 1992). That is to say, while these questions are asked of science, they could not be answered by science alone. Decisions about risk acceptability require political intervention, particularly when consensus among different stakeholders (for example, the state and the public) cannot be achieved (Starr and Whipple 1980).

2.2 Economic and Psychological Approaches

Risk in the economic sense is conceptualized as "possible" cost and not "actual" cost, as it also takes into account the likelihood of the occurrence of the adverse event (Renn 1998). Compared to the technical approach, the cost-based concept of risk under economics also takes into account the extent to which individuals express subjective dissatisfaction toward the event. This conceptualization allows researchers and decision makers to address the question that is not possible under the technical approach, which is how much risk is enough (Renn 1998). The assumption follows the rational actor paradigm (or RAP), which is that individuals act

rationally to serve their self-interests in all situations (Renn 1992).

The psychological approach shares two main similarities with the economic approach. First, risk is also a subjective interpretation of negative effects of an event or activity. Second, it also subscribes to the rational actor assumption, specifically the bounded rationality model (Taylor-Gooby and Zinn 2006). Under the bounded rationality model, individuals act to serve their self-interests under limited information in most circumstances. As a result, they seek satisfactory solutions at costs most acceptable to them, rather than to achieve optimal results at any cost.

The psychological approach differs from the economic approach in the following way—instead of conceptualizing risk as a function of cost or loss, the former treats risks as instances of cognitive bias and mental heuristic. In other words, while humans are innately rational, their risk perceptions are not always accurate. Their subjective interpretations may not be congruent with the reality "out there" because they can be easily "warped" by cognitive biases and mental short-cuts (Tversky and Kahneman 1981). The way that issues are framed also influences whether individuals perceive the situation to be a winning or losing one, and hence adjust their risk appetite accordingly (Tversky and Kahneman 1981; Kahneman and Lovallo 1993).

The psychological approach, known as "the wisdom of the lay public" (Renn 2008b, 20), is also often contrasted with expert judgment (Slovic 1999). Ironically, the public under this approach seems hardly capable of wisdom. Research shows that risk perceptions not only vary in terms of the activity or domain of interest, for instance smoking or nuclear power plant safety (Slovic 1992), they are also influenced by contextual factors such as the extent of "dread" that people understand the consequences could be and the number of people involved (Slovic, Fischhoff, and Lichtenstein 1982). In addition, people's beliefs and worldviews about the causes of risk, as well as their demographics (for example, sex and race) and professional commitments, as a scientist or lawyer (Slovic 1999) also influence their risk perceptions (Otway and Thomas 1982).

Recent reflections by distinguished scholars suggest that the psychological approach is shedding its naive insistence that risk perception is an enterprise of logic and scientific deliberation unadulterated by emotions and social context (Fischhoff 1995; Slovic et al. 2004). As an example, Slovic and his associates, who recast feelings as "neural and psychological substrate of utility" (Slovic et al. 2004, 321), recognize that risk perceptions are products of the analytic and experiential minds, and, more importantly, that it is not meaningful to emphasize one over the other.

2.3 Sociological Approach

Compared to the above approaches, the ontological positions in sociology are more varied. There are studies that range from a conspicuous realist view to a strong social constructionist view and in between the two polar opposites, others that are hybrids of both views in varying degrees. In fact, most studies do not dismiss that risks are both fact and value laden, or they contain both objective and subjective elements (Tierney 1999; Renn 2008a; Hansson 2010). Therefore, risks are deeply situated in the social context and the analysis of risk cannot be treated as value-free.

Research on the social amplification of risk counts as one effort to reconcile ontological realism with the social constructionist view (Kasperson 1992; Renn 1998; Pidgeon, Kasperson, and Slovic 2003). Beyond psychological influences, the social amplification of risk framework highlights other factors such as culture and institutions (most prominently, media and government agencies) that amplify and attenuate risk interpretations via a network of socially mediated communication channels (Kasperson et al. 1988; Kasperson 1992; Pidgeon, Kasperson, and Slovic 2003; Masuda and Garvin 2006).

Researchers have also pointed out that risk research should not be confined to only issues pertaining to risk management and communication; it should also examine the antecedents, that is, the risk assessment domain (Freudenburg 1992). Efforts are also made to locate the emergence, production, and predominance of risk within the broader social fabric of society (Luhmann 1993; Beck 1999). In particular, Beck's (1999) risk society concept also draws out the risk that a society chiefly powered by science and technology will transform itself into a natural laboratory of dangerous experiments that lacks barriers to limit its destructive consequences.

The cultural approach also focuses on the social forces that produce risk, particularly the contest among multiple social groups (Douglas and Wildavsky 1982). The cultural approach argues that risks should be treated as "social processes rather than physical entities that exist independently of the humans who assess and experience them" (Bradbury 1989, 389). It emphasizes how risk is also a prominent way today to talk about danger by linking it to some moral defect or disapproved behavior, yet at the same time, strategically avoiding the language of religion that is cast in sin and taboo (Douglas and Wildavsky 1982; Douglas 1990). By capitalizing on its legacy of science, risk can also be legitimately deployed to induce fear (Douglas 1990).

There is also a conspicuous resistance against the RAP pervasive in earlier approaches. Alternative theories, such as social amplification of risk, are proposed to attend to broader social and institutional forces, which also shape how risks are produced, perceived, and regulated (Jaeger et al. 2001). These influences are typically invisible in approaches that subscribe to RAP. The essence of these alternative theories is that they not only reveal the rigid, authoritative, and deterministic character of RAP, but also clarify its limits in defining and measuring risks.

Another prominent sociological approach toward risk is the social constructionist view. It has its roots in the social construction of reality (Berger and Luckmann [1966] 1991),

and the more specialized areas of social study of science and technology (Latour and Woolgar 1979; Pinch and Bijker 1984; Latour 1987), as well as natural hazards and disaster research (Clarke and Short 1993; Vaughan 1996; Tierney 1999; Vaughan 1999; Renn 2008a). Central to this view is that risk is a social construct that reflects how society deals with uncertainty (Tierney and Bevc 2007). This perspective goes beyond risks as externally quantifiable objects (the technical approach) or as individual cognitive biases (the psychological approach). It conceives risks as products of social interactions that are deeply embedded in social structures (Manning 1989; Tierney 1999). To clarify, while a social constructionist approach does not claim that risk does not exist, it seeks to reveal and elaborate its social etiology (Turner 1979), that is, the process through which "social agents create and use boundaries to demarcate that which is dangerous" (Clarke and Short 1993, 379).

The critical perspective in sociology has also highlighted the social inequality and vulnerability created and perpetuated through the interactions between risks and power (Tierney 1999; Blaikie, Cannon, and Wisner 2001). Hurricane Katrina illustrates how risks and their wrathful incarnation as disasters do not rise from a vacuum but are continually shaped by political, social, and economic forces that occupy the public sphere (Tierney 2005; Freudenburg et al. 2007). More importantly, the critical approach recognizes that risks and the accompanying processes of risk-making are social in nature and that risks can manifest as events. These events further exert disproportionate destruction on lives and property across race, class, and gender.

Distilled from the social constructionist and critical perspectives are also the predominance of organizations and the state as the legitimate claims-makers and final arbiters to define what count as risks and what do not (Clarke 1988; Stallings 1995). Whether such risks are "distorted" through the prism of cognitive biases or mental heuristics become moot because the broader institutional arrangements have already decided for the public what should be the risks and which parties are to bear them.

Institutionalized organizations such as the Federal Emergency Management Agency (FEMA) are also not immune to error and failure (Perrow 2011). Perrow (1984) and Shrader-Frechette (1985) describe how nuclear power risk assessments are influenced by organizational considerations, resulting in the exclusion of many potential causes of system failure. Institutions can also become recreant and fail to discharge their responsibilities "with the degree of rigor necessary to merit societal trust" (Freudenburg 1993, 909). In other instances, an institution might inadvertently and unreflectively routinize a higher tolerance of risk beyond what is acceptable for safety operations, therefore incubating the risk for an opportune delivery of disaster (Turner 1976; Vaughan 2004).

Another illustration of how institutional arrangements affect risk production is the partial nuclear meltdown in the Fukushima Daiichi nuclear power plant after the March 2011 earthquake and tsunami. It can be argued that the disaster is an unintended result of the longstanding relationships between the state and institutionalized organizations in the nuclear industry. To elaborate, the weak enforcement of governmental oversight stems from the revolving door practices prevalent in Japan, also known as the *amakudari* ("descent from heaven") system. Specific to the nuclear establishment in Japan, senior civil servants from the powerful Ministry of Trade, Economy and Industry (that is, from "heaven") retire early to accept jobs in energy corporations, such as TEPCO (the company that owns the Fukushima power plant), that are regulated by their former colleagues back in the Nuclear and Industrial Safety Agency, which is a part of the trade ministry (Onishi and Belson 2011). The strong social cohesion of the nuclear establishment, also known as the "nuclear power village," further discourages whistle-blowing (Onishi and Belson 2011).

Researchers have also argued that organizations and institutions—such as the scientific community, federal agencies, and the mass media—often feed inconsistent information to the public. This is because the views of these disparate collectivities are shaped by professional and organizational interests (Sapolsky 1990). More importantly, the divergence in perceptions is unintentional but due to the inherent adversarial nature of the politics of risk (Sapolsky 1990). But not all researchers accept such a benign view of the state and other institutionalized organizations. For example, Perrow (2011) asserts that the 2008 financial crisis is a case of executive failure. According to him, even though the tight coupling and complexity in the global financial system may have exacerbated the situation, executives—industry leaders and government officials alike—have committed malfeasance by discounting and even dismissing the warnings prior to meltdown.

The attempts by organizations and institutions to create and simultaneously tame risk are still ongoing. The next section highlights the emergence of risk governance as one such effort.

3 Risk Governance as an Emergent Approach

Given that risk research has expanded dramatically to include assessment, management, and communication of risk, there is a movement toward creating a comprehensive framework that comprises all these components under the term risk governance. One definition of risk governance refers to how various actors, rules, conventions, processes, and mechanisms are involved in collecting, analyzing, and communicating risk information and the decisions taken to manage risks (Renn and Walker 2008; Renn 2008a). The focus on risk governance in this article is neither on the mechanics nor its application to specific extreme events, but rather its emergence within the broader historical and socio-political context. As pointed out by Jasanoff, the emphasis on governance attends to the

politics of dealing with risks (Jasanoff 1990, 2010). In addition, governance as a form of control also hints at the collective decision-making structures and processes between government and nongovernment actors (Nye and Donahue 2000). The shift of power has moved precipitously toward the latter, particularly the business sector. As a result, an umbrella term is required to capture the attempts at regulation and control by both sets of actors, and hence the strategic maneuver of vocabulary to reflect the shift from acts of government to a more ambivalent term, acts of governance (Hutter 2006).

This movement toward a more conspicuous private, particularly corporate, ownership of public services and the putative partnership between the public and the private in risk governance also raises concern. Taking the case of critical infrastructure (for example, electric power network) in the United States, a significant proportion belongs to private firms.[i] The ownership is further complicated by the interrelationships between utility executives and regulators (Feinstein 2006). These issues surface tensions between regulators and private companies, as well as matters regarding costs and public responsibilities (Federal Energy Regulatory Commission 2003; U.S.-Canada Power System Outage Task Force 2004).

Taken together, the role of institutions and the emergence of risk governance under the growing imbalance of regulatory power between government and nongovernment actors suggest that the processes and the institutional arrangements in which risks are being produced and distributed in society are thrown into even sharper relief. It is against this backdrop that the concepts of sociological neoinstitutionalism and Foucauldian governmentality help to expand and deepen research on risk governance of extreme events.

Sociological institutionalism is considered one of the most significant research programs in contemporary U.S. sociology (Jepperson 2002). Just as important, using neoinstitutionalism also responds to distinguished disaster sociologist Quarantelli's (2005) call to integrate disaster research—of which risk governance of extreme events is a prominent topic—with core sociological concerns and within broader theoretical frameworks.

The final sections of the article proceed as follows: (1) sociological neoinstitutionalism is sketched out; (2) legitimacy is focused on as one of the more prominent research streams under the broader program of neoinstitutionalism; (3) Foucauldian governmentality is introduced to fill specific gaps in neoinstitutionalism; and (4) an analysis of the challenges involved in applying Foucauldian governmentality concludes the discussion.

4 Introducing Neoinstitutionalism and Governmentality

Neoinstitutionalism and governmentality attend to different but related questions. Neoinstitutionalists are interested about how and why specific formal and informal mechanisms and the involvement of specific configurations of actors emerge and become appropriate over time. Governmentality researchers ask those questions, but emphasize why these mechanisms and actors are privileged in the first place. Broadly speaking, neoinstitutionalism asks about the attainment and change in status quo of institutional arrangements, while governmentality challenges and attempts to reveal the power dynamics underlying the status quo.

Sociological neoinstitutionalism deliberately shifts away from the atomistic and realist view that has dominated the intellectual landscape of American sociology. As pointed out by Friedland and Alford (1991), neoinstitutionalism attempts to reclaim society as a meaningful level of analysis that it is not simply a sum of individual actions and inter-relationships among social collectivities.[ii] At its ontological core, neoinstitutional theory is social constructionist, in that it emphasizes the shared knowledge and meanings that emerge through social interactions (Berger and Luckmann [1966] 1991). It takes organizations seriously as interpretive systems (Daft and Weick 1984), noting how they purposefully tap into wider worlds of meaning to leverage their power (Oliver 1991; Scott 2001; Mohr and Friedland 2008). Scott says most lucidly how organized actors import meaningful accounts from their environment rather than to reinvent the wheel from within: "All of us to some degree design or tailor our worlds, but we never do this from raw cloth; indeed, for the most part we get our worlds ready to wear" (Scott 1991, 170).

Several studies support the neoinstitutional view. They show that organizations often either do not completely behave rationally or strictly follow a functional logic (Meyer and Rowan 1977; Tolbert and Zucker 1983). Latent in the discussion is culture, and its effects become particularly discernible when either efficiency or productivity is not aligned with organizational claims in their goals or values (DiMaggio 1994). Organizations that adopt structures and practices to conform to their institutional context are considered institutionalized (Meyer and Rowan 1977). In particular, organizations in the same field, for example the U.S. radio industry described by Leblebici et al. (1991), become institutionalized and look increasingly similar because they respond to three environmental conditions: (1) political or regulatory pressures (coercive isomorphism); (2) uncertain or ambiguous environment (mimetic isomorphism); and (3) professionalization efforts (normative isomorphism) (DiMaggio and Powell 1983).

Seen this way, organizations are no longer conceived as purposive, completely bounded, and independent entities. Instead, they are well-embedded in their cultural environment (Powell and DiMaggio 1991; Meyer 2008). This is a rejection of the tabula rasa approach in which organizations not only exist but function in a vacuum (Perrow 1986; Jepperson and Meyer 1991). Instead, their actions are organized by the scripts and schemas available in their environment.

The nested model inherent in neoinstitutional theory means that organizations are conceived as being embedded in their

organizational fields and environments (Meyer and Scott 1983; Zucker 1988; Christensen and Molin 1995). The broader cultural and historical environment thus exerts influence on organizations, hence causing them to modify their behavior and structures accordingly. For example, Christensen and Molin (1995) found that in line with broader societal expectations over the past century of democratic ways of organization, the governance system in the Danish Red Cross not only became more participative by gradually including local branches in the decision-making process, but has also eventually rejected the call to separate professionals and volunteers in its organizational structure.

4.1 Legitimacy

Neoinstitutionalism explains how and why organizational arrangements continue to persist over time even when there are compelling rational or functional reasons for their modification or demise. These arrangements persist because organizations retain them to gain and sustain legitimacy vis-a-vis other organizations that share the same institutional environment (Meyer and Rowan 1977). This quest for legitimacy in turn ensures their survival. Similar to institutions, legitimacy is a central concept in neoinstitutionalism that is often deployed but seldom formally defined. Researchers have referred to legitimacy as "social fitness" (Oliver 1991) or "the degree of cultural support for an organization" (Meyer and Scott 1983, 201). Suchman (1995) and Archibald (2004) highlight the importance of collective perception, particularly the acceptance by both internal and external audience in order for an organization to be seen as legitimate. The notion of collective perception is crucial here because it is the appearance of consensus that confers legitimacy. This article refers to Suchman's definition that has gained acceptability in organizational research. He defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman 1995, 574).

Legitimacy is always defined with reference to some social group (Deephouse 1996). In other words, what one group perceives as legitimate does not mean it will be legitimate to another. In addition, legitimacy, as highlighted by Suchman, is also socially constructed. Many studies on legitimacy adopt Suchman's (1995) typology: (1) pragmatic, (2) moral, and (3) cognitive legitimacy.[iii] Briefly, pragmatic legitimacy is associated with interest and exchange. The exchange could be monetary or something more abstract, such as commitment. Moral legitimacy is based on whether the organizational activity is considered "the right thing to do." Finally, when other organizations confer cognitive legitimacy to another organization, they are basing their acceptance on some taken-for-granted cultural account.

Although terms such as institutions and legitimacy are known to be deployed in the study of risks and its governance, few studies use neoinstitutionalism in a substantive way. The terms are used in a very loose way and seldom defined, such as O'Neill et al.'s (2007) study of the miscommunication in the 2001 anthrax attacks and Baldi's (1995) account of the transformation of the U.S. Nuclear Regulatory Commission after the Three Mile Island nuclear accident. Baldi's study is especially illustrative because, while it gestures toward sociological neoinstitutionalism, its substantive theoretical base is more economics than sociology. Thus one can argue that using neoinstitutional theory in a more serious manner produces more careful and precise articulation of the legitimacy of institutions that inform research on risk governance of extreme events.

Efforts have also been made to make neoinstitutional theory more sensitive to questions related to agency, interests, and power (DiMaggio 1988) because neoinstitutionalist accounts typically elide questions about why some structures, processes, and outcomes are institutionalized or considered more valuable in the first place. Foucault's ideas concerning governmentality provide a corrective for this weakness because they treat institutionalization as naturalization. The emphasis on classifications, routines, scripts, and schemas in neoinstitutional theory also provides a natural entry point to introduce Foucauldian conceptions about the deep coupling between power and knowledge (Power 2011). Discussion of the concept of governmentality reveals the power/knowledge connection.

4.2 Foucault's Concept of Governmentality

During his Collège de France lectures in early 1978, Michel Foucault (2007) coined the term governmentality to describe the array of institutions,[iv] forms of knowledge, and techniques that enables the exercise of power over its target population. In other words, when Foucault says something has been governmentalized, he is saying that it has assumed a particular form and style of managing its subjects. Foucault arrived at this conclusion through his historical analysis of how Machiavellian ideas about the sovereignty of the state no longer constituted the only form of power in society, and thus was further complemented by other forms of power, namely discipline and government. By sovereignty, Foucault refers to the theory and practice of royal administrative rule under feudal monarchy, which depended solely on the formal, juridical, and the executive arm of the state (Dean 2010). By discipline, Foucault refers to practices that are based in the military, monasteries, schools, and even prisons (Foucault [1977] 1995, 2007).

Governmentality can be read in two different but related ways. First, as an analytic of government, it attempts to reveal our taken-for-granted ways of doing things, revealing how we think about and question them (Lemke 2002; Dean 2010). Second, as a problematic of government (Foucault 2007), governmentality also reveals how an issue is construed as a problem and thus becomes an opportunity to be solved.

While Foucault originally discounts the strength of state sovereignty, more recent governmentality studies on contemporary neoliberal practices find that it has neither diminished nor reduced. In addition, new actors (for example, nongovernmental organizations, such as global credit rating agencies) are entering the scene of government, thus reconfiguring the nature and relations of the state and civil society (Rose 1999; Lemke 2002; Deuchars 2010).

5 Challenges and Conclusion

There are issues associated with deploying governmentality within a neoinstitutionalist account. While both theories agree that organizations strive for legitimacy, they diverge on the motivations and the conditions under which it is attained. What neoinstitutionalism treats as social alignment within the prevailing rational or just order (Schneiberg and Bartley 2001), governmentality sees as oppression even though no single party can be identified as the oppressor.[v] Said in another way, while governmentality recognizes how the neoinstitutonalist account reveals patterns of domination and subtle forms of subjugation in organizations, it criticizes neoinstitutionalism for not going far enough to problematize the status quo as being oppressive (Cooper, Ezzamel, and Willmott 2008). From the governmentality perspective, institutionalization means something has become taken for granted, and hence not questioned or criticized. Although efforts are made to infuse neoinstitutionalism with greater emphasis on interest and agency (DiMaggio 1988), the governmentality perspective expects more because the neoinstitutionalist account is resistant to questions like why something is institutionalized or considered more valuable in the first place.

However, neoinstitutionalism also points out that while governmentality highlights power, it also does not go far enough to emphasize contest. For example, it is often argued that although governmentality theorists identify neoliberalism as the governmental rationality that seeds the emergence of various market-based governance mechanisms across societies, there is anemic indication of struggle among the actors. To illustrate, if one applies the governmentality lens to environmental governance, environmental groups seem complicit in the act of consigning nature to commercial exploitation, albeit in a more measured way.

The governance of risk carries such dire societal consequences that it cannot be treated as a tidy and unproblematic exercise of technical analyses and calculated interventions. It emerges from specific historical and socio-political contexts, and serves particular interests. By suggesting a lens that carefully merges neoinstitutionalism and governmentality to examine risk governance, this article responds to James Short's original mandate for social scientists in general, and sociologists in particular, to bring their "perspectives, knowledge and methods" to bear on risk (Short 1984, 722).

Notes

i The figure quoted can be as high as 85 percent, as announced by U.S. Senator Robert F. Bernnett following his introduction of S. 1456, *Critical Infrastructure Information Security Act of 2001*, on 24 September 2001. The 80 or 85 percent figure seems to be the "magic figure" quoted by various sources, but without reference to any official reports or empirical studies.

ii The return to studying institutions (hence the emergence of neoinstitutionalism) in sociology was part of a broader social science movement that began in the late 1960s. In economics, for example, researchers such as North (1994) acknowledge that institutions matter in economic development. He highlights how institutions supply the rules that allow players (such as organizations) to participate in the economic game in a concerted manner. North's conceptualization of institutions refers to formal (for example, laws) and informal (for example, self-imposed codes of conduct) constraints that define the incentive structure for economic behavior. It is a definition that has gained traction in new institutional economics research (Williamson 1994).

In comparison, the sociological definition of institutions is less restrictive. It goes beyond rules and can be embodied in social collectivities, such as the family and formal organizations like the state (Meyer and Rowan 1977). In fact, societies are argued to be "agglomeration of institutions" (Berger and Luckmann [1966] 1991, 55).

More varieties of neoinstitutionalism are discussed in Schmidt (2006). Another insightful discussion is DiMaggio and Powell's (1991) introduction in their now classic book, *The New Institutionalism in Organizational Analysis*.

iii Suchman's (1995) typology is significantly more sophisticated and nuanced than the three broad types presented in this article. To illustrate, under moral legitimacy Suchman further distills it into three forms of legitimacy: consequential legitimacy, procedural legitimacy, and structural legitimacy. In addition, neoinstitutional theorists have also advocated other dimensions and typologies of legitimacies. For details, see Deephouse and Suchman (2004).

iv Institutions here resemble those highlighted under the "old" sociological institutionalism as they refer to organizations that "take on a special character and to achieve a distinctive competence, perhaps, a trained in-built capacity." See Selznick (1996, 271). In another instance, borrowing from Robert Castel's *L'Ordre Psychiatrique*, Foucault also points out that the hospital as an institution is deeply connected with what he calls the "psychiatric order." See Foucault (2007).

v This seems to be the modus operandi for governmentality research, as it refuses to reify any particular social entity, especially prominent ones, such as the state. For example, the state is conceived as a nominal entity with no essential function or necessity. See Gordon (1991).

References

Archibald, M. E. 2004. Between Isomorphism and Market Partitioning: How Organizational Competencies and Resources Foster Cultural and Sociocultural Legitimacy, and Promote Organizational Survival. *Research in the Sociology of Organizations: Legitimacy Processes in Organizations* 22: 171–211.

Baldi, B. 1995. Institutional Change versus Institutional Persistence? The Transformation of the U.S. Nuclear Regulatory Commission since Three Mile Island. *University of Delaware Disaster Research Center Preliminary Paper* 236.

Beck, U. 1999. *World Risk Society*. Cambridge: Polity Press.

Berger, P. L., and T. Luckmann. [1966] 1991. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. New York: Penguin Books.

Bernstein, P. L. 1996. *Against the Gods: The Remarkable Story of Risk*. New York: John Wiley & Sons.

Blaikie, P., T. Cannon, and B. Wisner. 2001. *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. New York: Routledge.

Bradbury, J. A. 1989. The Policy Implications of Differing Concepts of Risk. *Science, Technology, & Human Values* 14 (4): 380–99.

Christensen, S., and J. Molin. 1995. Origin and Transformation of Organizations: Institutional Analysis of the Danish Red Cross. In *The Institutional Construction of Organizations*, edited by W. R. Scott and S. Christensen, 67–90. Thousand Oaks, CA: Sage Publications.

Clarke, L. 1988. Explaining Choices among Technological Risks. *Social Problems* 35 (1): 22–35.

Clarke, L., and J. F. J. Short. 1993. Social Organization and Risk: Some Current Controversies. *Annual Review of Sociology* 19 (1): 375–99.

Cooper, D. J., M. Ezzamel, and H. Willmott. 2008. Examining "Institutionalism": A Critical Theoretic Perspective. In *The Sage Handbook of Organizational Institutionalism*, edited by R. Greenwood, C. Oliver, K. Sahlin, and R. Suddaby, 673–701. Thousand Oaks, CA: Sage Publications.

Daft, R. L., and K. E. Weick. 1984. Toward a Model of Organizations as Interpretation Systems. *Academy of Management Review* 9 (2): 284–95.

Dean, M. 2010. *Governmentality: Power and Rule in Modern Society*. 2nd ed. Thousand Oaks, CA: Sage.

Deephouse, D. L. 1996. Does Isomorphism Legitimate? *Academy of Management Journal* 39 (4): 1024–39.

Deephouse, D. L., and M. Suchman. 2004. Legitimacy in Organizational Institutionalism. In *The Sage Handbook of Organizational Institutionalism*, edited by R. Greenwood, C. Oliver, K. Sahlin, and R. Suddaby, 49–77. Thousand Oaks, CA: Sage.

Deuchars, R. 2010. Towards the Global Social: Sociological Reflections on Governance and Risk in the Context of the Current Financial Crisis. *Cambridge Review of International Affairs* 23 (1): 107–25.

DiMaggio, P. J. 1988. Interest and Agency in Institutional Theory. In *Institutional Patterns and Organizations: Culture and Environment*, edited by L. G. Zucker, 3–21. Cambridge: Ballinger Publishing Company.

——. 1994. Culture and Economy. In *The Handbook of Economic Sociology*, edited by N. J. Smelser and R. Swedberg, 27–57. Princeton, NJ: Princeton University Press.

DiMaggio, P. J., and W. W. Powell. 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review* 48 (2): 147–60.

——. 1991. Introduction. In *The New Institutionalism in Organizational Analysis*, edited by W. W. Powell and P. J. DiMaggio, 1–38. Chicago: University of Chicago Press.

Douglas, M. 1990. Risk as a Forensic Resource. *Daedalus* 119 (4): 1–16.

Douglas, M., and A. Wildavsky. 1982. *Risk and Culture*. Berkeley and Los Angeles: University of California Press.

Federal Energy Regulatory Commission. 2003. Final Report on Price Manipulation in Western Markets (March 2003): Summary of Findings.

Feinstein, J. 2006. Managing Reliability in Electric Power Companies. In *Seeds of Disasters, Roots of Response: How Private Action Can Reduce Public Vulnerability*, edited by P. E. Auerswald, L. M. Branscomb, T. M. La Porte, and E. O. Michel-Kerjan, 164–83. New York: Cambridge University Press.

Fischhoff, B. 1995. Risk Perception and Communication Unplugged: Twenty Years of Process. *Risk Analysis* 15 (2): 137–45.

Foucault, M. [1977] 1995. *Discipline and Punish*. Translated by A. Sheridan. 2nd ed. New York: Vintage Books.

——. 2007. 8 February 1978. In *Security, Territory, Population: Lectures at the Collège de France, 1977–78*, edited by M. Senellart, 115–34. New York: Palgrave Macmillan.

Freudenburg, W. R. 1992. Nothing Recedes Like Success? Risk Analysis and the Organizational Amplification of Risks. *Risk* 3 (1): 1–35.

——. 1993. Risk and Recreancy: Weber, the Division of Labor, and the Rationality of Risk Perceptions. *Social Forces* 71 (4): 909–32.

Freudenburg, W. R., R. Gramling, S. Laska, and K. T. Erikson. 2007. Katrina: Unlearned Lessons. *World Watch* 20 (5): 14–19.

Friedland, R., and R. R. Alford. 1991. Bringing Society Back in: Symbols, Practices, and Institutional Contradictions. In *The New Institutionalism in Organizational Analysis*, edited by W. W. Powell and P. J. DiMaggio, 232–63. Chicago: University of Chicago Press.

Gordon, C. 1991. Governmental Rationality: An introduction. In *The Foucault Effect: Studies in Governmentality*, edited by G. Burchell, C. Gordon, and P. Miller. Chicago: University of Chicago Press.

Hansson, S. O. 2010. Risk: Objective or Subjective, Facts or Values. *Journal of Risk Research* 13 (2): 231–38.

Hutter, B. M. 2006. Risk, Regulation, and Management. In *Risk in Social Science*, edited by P. Taylor-Gooby and J. O. Zinn, 202–27. New York: Oxford University Press.

Jaeger, C. C., O. Renn, E. A. Rosa, and T. Webler. 2001. *Risk, Uncertainty and Rational Action*. London: Earthscan.

Jasanoff, S. 1990. American Exceptionalism and the Political Acknowledgment of Risk. *Daedalus* 119 (4): 61–81.

——. 2010. Beyond Calculation: A Democratic Response to Risk. In *Disaster and the Politics of Intervention*, edited by A. Lakoff, 14–40. New York: Columbia University Press.

Jepperson, R. L. 2002. The Development and Application of Sociological Neoinstitutionalism. In *New Directions in Contemporary Sociological Theory*, edited by J. Berger and M. Zelditch Jr., 229–66. Lanham, MD: Rowman & Littlefield Publishers, Inc.

Jepperson, R. L., and J. W. Meyer. 1991. The Public Order and the Construction of Formal Organizations. In *The New Institutionalism in Organizational Analysis*, edited by W. W. Powell and P. J. DiMaggio, 204–31. Chicago: University of Chicago Press.

Kahneman, D., and D. Lovallo. 1993. Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk-Taking. *Management Science* 39 (1): 17–31.

Kasperson, R. E. 1992. The Social Amplification of Risk: Progress in Developing an Integrative Framework. In *Social Theories of Risk*, edited by S. Krimsky and D. Golding, 153–78. Westport, CT: Praeger Publishers.

Kasperson, R. E., R. Ortwin, P. Slovic, H. S. Brown, J. Emel, R. Goble, J. X. Kasperson, and S. Ratick. 1988. The Social Amplification of Risk: A Conceptual Framework. *Risk Analysis* 8 (2): 177–87.

Latour, B. 1987. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge: Harvard University Press.

Latour, B., and S. Woolgar. 1979. *Laboratory Life: The Social Construction of Scientific Facts*. Vol. 80, *Sage Library of Social Research*. Beverly Hills, CA: Sage Publications.

Leblebici, H., G. R. Salancik, A. Copay, and T. King. 1991. Institutional Change and the Transformation of Interorganizational Fields: An Organizational History of the U.S. Radio Broadcasting Industry. *Administrative Science Quarterly* 36 (3): 333–63.

Lemke, T. 2002. Foucault, Governmentality, and Critique. *Remaking Marxism* 14 (3): 49–64.

Luhmann, N. 1993. *Risk: A Sociological Theory*. New York: Aldine de Gruyter.

Manning, P. K. 1989. Managing Risk: Managing Uncertainty in the British Nuclear Installations Inspectorate. *Law and Policy* 11 (3): 350–69.

Masuda, J. R., and T. Garvin. 2006. Place, Culture, and the Social Amplification of Risk. *Risk Analysis* 26 (2): 437–54.

Meyer, J. W. 2008. Reflections on Institutional Theories of Organizations. In *The Sage Handbook of Organizational Institutionalism*,

edited by R. Greenwood, C. Oliver, K. Sahlin, and R. Suddaby, 790–812. Thousand Oaks, CA: Sage.

Meyer, J. W., and B. Rowan. 1977. Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology* 83 (2): 340–63.

Meyer, J. W., and W. R. Scott, eds. 1983. *Organizational Environments: Ritual and Rationality*. Beverly Hills, CA: Sage.

Mohr, J. W., and R. Friedland. 2008. Theorizing the Institution: Foundation, Duality, and Data. *Theory and Society* 37: 421–26.

North, D. C. 1994. Economic Performance through Time. *American Economic Review* 84 (3): 358–68.

Nye, J. S., and J. D. Donahue, eds. 2000. *Governance in a Globalizing World*. Washington, DC: Brookings Institution Press.

O'Neill, K. M., J. M. Calia, C. Chess, and L. Clarke. 2007. Miscommunication during the Anthrax Attacks: How Events Reveal Organizational Failures. *Human Ecology Review* 14 (2): 119–29.

Oliver, C. 1991. Strategic Responses to Institutional Processes. *Academy of Management Review* 16 (1): 145–79.

Onishi, N., and K. Belson. 2011. Culture of Complicity Tied to Stricken Nuclear Plant. *The New York Times*, April 26, 2011, New York edition, A1.

Otway, H., and K. Thomas. 1982. Reflections on Risk Perception and Policy. *Risk Analysis* 2 (2): 69–82.

Perrow, C. 1984. *Normal Accidents: Living with High-Risk Technologies*. New York: Basic Books.

——. 1986. *Complex Organizations: A Critical Essay*. 3rd ed. New York: Newbery Award Records.

——. 2011. *The Next Catastrophe: Reducing Our Vulnerabilities to Natural, Industrial, and Terrorist Attacks*. Princeton, NJ: Princeton University Press.

Pidgeon, N., R. E. Kasperson, and P. Slovic. 2003. *The Social Amplification of Risk*. Cambridge, U.K.: Cambridge University Press.

Pinch, T. J., and W. E. Bijker. 1984. The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other. *Social Studies of Science* 14 (3): 399–441.

Powell, W. W., and P. J. DiMaggio, eds. 1991. *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press.

Power, M. 2011. Foucault and Sociology. *Annual Review of Sociology* 37: 35–56.

Quarantelli, E. L. 2005. A Social Science Research Agenda for the Disasters of the 21st Century: Theoretical, Methodological and Empirical Issues and Their Professional Implementation. In *What Is a Disaster?: New Answers to Old Questions*, edited by R. W. Perry and E. L. Quarantelli, 325–96. Philadelphia: Xlibris.

Renn, O. 1992. Concepts of Risks: A Classification. In *Social Theories of Risk*, edited by S. Krimsky and D. Golding, 53–79. Westport, CT: Praeger Publishers.

——. 1998. Three Decades of Risk Research. *Journal of Risk Research* 1 (1): 49–71.

——. 2008a. Concepts of Risk: An Interdisciplinary Review. *GAIA – Ecological Perspectives for Science and Society* 17 (1): 50–66.

——. 2008b. *Risk Governance: Coping with Uncertainty in a Complex World*. London: Earthscan.

Renn, O., and K. D. Walker, eds. 2008. *Global Risk Governance: Concept and Practice Using the IRGC Framework*. Dordrecht: Springer.

Rose, N. 1999. *Governing the Soul: The Shaping of the Private Self*. 2nd ed. London: Free Association Books.

Sapolsky, H. M. 1990. The Politics of Risk. *Daedalus* 119 (4): 83–96.

Schmidt, V. 2006. Institutionalism. In *The State: Theories and Issues*, edited by C. Hay, M. Lister, and D. Marsh, 98–117. New York: Palgrave Macmillan.

Schneiberg, M., and T. Bartley. 2001. Regulating American Industries: Markets, Politics, and the Institutional Determinants of Fire Insurance Regulation. *American Journal of Sociology* 107 (1): 101–46.

Scott, W. R. 1991. Unpacking Institutional Arrangements. In *The New Institutionalism in Organizational Analysis*, edited by W. W. Powell and P. J. DiMaggio, 164–82. Chicago: University of Chicago Press.

——. 2001. *Institutions and Organizations*. 2nd ed. *Foundations for Organizational Science* Series. Thousand Oaks, CA: Sage Publications.

Selznick, P. 1996. Institutionalism: "Old" and "new". *Administrative Science Quarterly* 41 (2): 270–77.

Short Jr, J. F. 1984. The Social Fabric at Risk: Toward the Social Transformation of Risk Analysis. *American Sociological Review* 49 (6): 711–25.

Shrader-Frechette, K. S. 1985. *Risk Analysis and Scientific Method: Methodological and Ethical Problems with Evaluating Societal Hazards*. Dodrecht: D. Reidel.

Slovic, P. 1987. Perception of Risk. *Science* 236 (4799): 280–85.

——. 1992. Perceptions of Risk: Reflections on the Psychometric Paradigm. In *Social Theories of Risk*, edited by S. Krimsky and D. Golding, 117–52. Westport, CT: Praeger Publishers.

——. 1999. Trust, Emotion, Sex, Politics, and Science: Surveying the Risk Assessment Battlefield. *Risk Analysis* 19 (4): 689–701.

Slovic, P., M. Finucane, E. Peters, and D. G. MacGregor. 2004. Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk, and Rationality. *Risk Analysis* 24 (2): 311–22.

Slovic, P., B. Fischhoff, and S. Lichtenstein. 1982. Why Study Risk Perceptions? *Risk Analysis* 2 (2): 83–93.

Stallings, R. A. 1995. *Promoting Risk: Constructing the Earthquake Threat*. New York: Aldine de Gruyter.

Starr, C. 1969. Social Benefit versus Technological Risk. *Science* 165 (3899): 1232–38.

Starr, C., and C. Whipple. 1980. Risks of Risk Decisions. *Science* 208 (4448): 1114–19.

——. 1984. A Perspective on Health and Safety Risk Analysis. *Management Science* 30 (4): 452–63.

Suchman, M. 1995. Managing Legitimacy: Strategic and Institutional Approaches. *Academy of Management Review* 20 (3): 571–610.

Taylor-Gooby, P., and J. O. Zinn. 2006. Current Directions in Risk Research: New Developments in Psychology and Sociology. *Risk Analysis* 26 (2): 397–411.

Tierney, K. J. 1999. Towards a Critical Sociology of Risk. *Sociological Forum* 14 (2): 215–42.

——. 2005. Social Inequality, Hazards and Disasters. In *On Risk and Disaster: Lessons from Hurricane Katrina*, edited by R. J. Daniels, D. F. Kettl, and H. Kunreuther, 109–28. Philadelphia: University of Pennsylvania Press.

Tierney, K. J., and C. Bevc. 2007. Disaster as War: Militarism and the Social Construction of Disaster in New Orleans. In *The Sociology of Katrina: Perspectives on A Modern Catastrophe*, edited by D. L. Brunsma, D. Overfelt, and J. S. Picou, 35–50. Maryland: Rowman & Littlefield Publishers, Inc.

Tolbert, P. S., and L. G. Zucker. 1983. Institutional Sources of Change in the Formal Structure of Organizations: The Diffusion of Civil Service Reform, 1880–1935. *Administrative Science Quarterly* 28 (1): 22–39.

Turner, B. A. 1976. The Organizational and Interorganizational Development of Disasters. *Administrative Science Quarterly* 21 (3): 378–97.

——. 1979. The Social Aetiology of Disasters. *Disasters* 3 (1): 53–59.

Tversky, A., and D. Kahneman. 1981. The Framing of Decisions and the Psychology of Choice. *Science* 211 (4481): 453–58.

U.S.-Canada Power System Outage Task Force. 2004. *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*. https://reports.energy.gov/BlackoutFinal-Web.pdf.

Vaughan, D. 1996. *The Challenger Launch Decision: Risky Technology, Culture and Deviance at NASA*. Chicago: University of Chicago Press.

——. 1999. The Role of Organization in the Production of Techno-Scientific Knowledge. *Social Studies of Science* 29 (6): 913–43.

——. 2004. Theorizing Disaster: Analogy, Historical Ethnography, and the Challenger Accident. *Ethnography* 5 (3): 315–47.

Weinberg, A. M. 1972. Science and Trans-Science. *Minerva* 10 (2): 209–22.

Williamson, O. E. 1994. Transaction Cost Economics and Organization Theory. In *Handbook of Economic Sociology*, edited by N. J. Smelser and R. Swedberg, 77–107. Princeton, NJ: Princeton University Press.

Zucker, L. G., ed. 1988. *Institutional Patterns and Organizations: Culture and Environment*. Cambridge: Ballinger Publishing Company.